Preliminary DRAFT Nearshore/Estuary Chinook Population - Tier I - Initial Habitat Project List

Includes Potential Restoration and Protection Projects by Reach.

Nearshore/Estuary Reaches 8-12 and Sub-reaches

Basinwide Recommendations:

Project #	Description
M606	Explore opportunities for riparian restoration.
M607	Explore opportunities for piling removal.

Please note: There is scientific uncertainty about Nearshore habitat and Chinook use of that habitat. Due to these uncertainties the Nearshore reaches were not prioritized using the EDT model. Experimental approaches to the protection of functioning habitat & the restoration of ecosystem processes should be implemented.

Potential basin wide research opportunities:

- Explore bluff sloughing as sediment source - (King County is working on this).
  - Examine the shoreline for locations to allow natural beach and bluff erosion to occur among the hardened BNRR track right away. (Ranking B2C: M/H, Feasibility: M)
  - Study should focus on current processes shaping the beach and the intertidal zone and out to include eelgrass beds and other like features.
- Explore Woodway slide sediment transport.
- Study using dredged materials from Snohomish and elsewhere to conduct beach nourishment projects.

Reach 8: Mukilteo St Park to Picnic Point

Restoration

Technical Hypothesis:

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
M218	8		Nearshore 5	**City of Mukilteo's Riparian Vegetation Enhancement:** In its 2004 Draft Shoreline Plan, the City of Mukilteo has identified priority properties for a nearshore riparian revegetation enhancement program. Work will be done using volunteer labor.		Potential locations for riparian revegetation: Edgewater Creek, Japanese Creek and Tank Farm, Lighthouse Park, Big Gulch Creek, Shipwreck/Hulk Creek, Picnic Point Creek/Park, Lund's Gulch/Meadowdale Park. See more detail on each location in list below.	**H**	**M**

M219	8		New	**Mukilteo Lighthouse Park:** Enhance the beach profile and marine riparian conditions by removing or setting back the existing park facilities along the shoreline and planting native marine riparian vegetation with only limited access points to the beach. Site identified by MRC and city of Mukilteo in 2004 park master plan.		Mukilteo Lighthouse Park was transferred from the Washington State Parks Department to the City of Mukilteo in 2002. Southern nearshore of park has good intact eelgrass beds. Potential study site to explore feasibility of riparian beach restoration. Little potential for overhanging riparian vegetation due to close proximity to railroad. Marine riparian vegetation is limited to small patches of Nootka rose, dune rye grass, and gumweed. While a good pilot project, project does not address the factors of decline for Chinook.	**L**	**H**
M220	8		New	**Nakeeta Beach Home Acquisition:** Restore the site by purchasing the fee simple property rights for all of the parcels and removing the houses, fill, and sea wall. A lifetime estate arrangement would allow the property owners to continue living on the site. Restoration work could not start until the residents vacated their properties according to the lifetime estate agreements.		Nakeeta Beach is a residential community built on top of approximately two acres of the upper intertidal zone of the western Mukilteo shoreline. The site includes ten houses that are protected by a nearly continuous concrete sea wall. Residential sewage is disposed of through on-site septic systems. The southernmost parcel within the site is undeveloped. Approximately half of the houses are occupied year-round and the others are summer homes.	**M**	**L**

Protection

Technical Hypothesis:

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
M221	8		Nearshore 4		**City of Mukilteo Tideland and Shoreline Acquisitions:** The City of Mukilteo is evaluating the Nearshore within its jurisdiction for additional potential tideland acquisition and shoreline habitat protection projects.		As opportunities present themselves especially adjacent or between publically owned lands and tidelands.	**H**	**H**

Sub-Reach 8.05: Big Gulch

Restoration

Technical Hypothesis:

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
M222	S8.05		New	**Big Gulch Culvert Replacement:** Replacement of the undersized culvert under the railroad with a trestle system to restore system connectivity and improve sediment transport into the nearshore.		Concerns exist about toxics in the upstream portion of the Big Gulch system. The headwaters of Big Gulch Creek drain the western portion of Paine Field Airport. Chemical spills in the vicinity of Paine Field in 1993, 1996, and 2000 resulted in downstream fish kills. Concerns were also raised about drainage problems upstream that could complicate the project. It was recommended that the project be coordinated with the next project if it is done.	**H/M**	**M**
M223	S8.05		New	**Big Gulch High-Flow Bypass and Restoration:** A High-flow bypass has been proposed by Snohomish County, Mukilteo and the local sewer district to address drainage and related erosion problems in the basin. Riparian restoration (improving nearshore habitat around the Big Gulch Creek outfall by adding sediment along the seaward side of the railroad to recreate a beach profile that will support marine riparian vegetation) has been proposed to accompany this project. Explore potential for pocket estuary.		The headwaters of Big Gulch Creek drain the western portion of Paine Field Airport. Chemical spills in the vicinity of Paine Field in 1993, 1996, and 2000 resulted in downstream fish kills. Concerns were also raised about the by-pass itself and whether it may conflict with other goals. Eelgrass extends from the stream outfall to the north. Puget Sound Saltwater Anglers and local residents have demonstrated a stewardship commitment for Big Gulch Creek by conducting stream surveys and counting returning salmon. Project feasibility study and planning are under way.	**M/L**	**M/L**
M224	S8.05		New	**Shipwreck/Hulk Creek Restoration**: Work with the property owners to enhance the marine riparian vegetation at the site. This would increase the amount of shade for potential forage fish spawning in the upper intertidal zone. Property is currently privately owned. Approximately 1000 ft. of shoreline restoration potential.		Site holds high potential for marine riparian vegetation restoration/enhancement. A mid-sized backshore area supports some marine riparian vegetation and there appears to be potential for enhancement with additional native planting. Eelgrass extends from this site to the north. Need to explore feasibility of removing ship hulks at site. Potential exists for contamination issues related to old shipyard on site.	**M**	**M/L**

Protection

Technical Hypothesis:

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
M225	S8.05			New	**Shipwreck/Hulk Creek Acquisition:** Acquisition and restoration of former shipyard site. Property is currently privately owned. Approximately 1000 ft. of shoreline restoration potential. It may be possible to protect the site by purchasing the fee simple property rights or some form of conservation easement. A lifetime estate arrangement would allow the property owners to continue living on the site while ensuring its preservation and enhancement of marine riparian vegetation.	$1 Mil.	If acquired, site holds high potential for marine riparian vegetation restoration/enhancement. A mid-sized backshore area supports some marine riparian vegetation and there appears to be potential for enhancement with additional native planting. Eelgrass extends from this site to the north. Need to explore feasibility of removing ship hulks at site. Potential exists for contamination issues related to old shipyard on site.	**M**	**M/L**

Reach 9: Picnic Point to Edwards Point

Restoration

Technical Hypothesis:

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
M226	9		New	**Picnic Point Riparian Enhancement:** Project underway to do planting, weed control and some interpretive materials on the shoreline side of the railroad tracks. Project will addresses approx. 1200 ft of shoreline.		Snohomish County MRC Project Underway (fully funded). Site has existing value for juvenile Chinook. Potential for some $ for fish passage issues at the parking lot and also higher in the watershed. This project includes marine riparian enhancement, creosote log removal, installation of nearshore interpretive signage, and feasibility and design of alternatives to address flooding, erosion, and fish passage problems. Benefit to Chinook might increase to medium if culvert is removed.	**L**	**H**
M227	9		New	**Picnic Point Culvert Replacement:** Replacement of the existing culvert under the railroad with a trestle to restore connectivity and improve sediment transport from the uplands. Project may also benefit fish passage.		Lots of drainage/slope stability problems exist in the drainage as identified by Snohomish County plan. Site currently hosts quite a bit of sediment deposition from the creek, but could be improved with the installation of the trestle. Two artificial fish passage barriers upstream from the park have been identified. The Snohomish County MRC project (above) at Picnic Point will shed some light on the flooding and sedimentation problem at the upstream end of the railroad culverts.	**M**	**M**

Protection

Technical Hypothesis:

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
	9				No projects identified at this time				

Sub-Reach 9.04: Lunds Gulch

Restoration

Technical Hypothesis:

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
M228	S9.04			**Lunds Gulch Culvert Improvement and Riparian Enhancement:** Project could take several forms. One option would be to implement Snohomish County's plan to replace the existing box culvert beneath the railroad with a wider box culvert as described in the Puget Sound Tributaries Drainage Needs Report. This project plan also includes riparian vegetation enhancement above and below the culvert, creation of an off-channel pond in the park, and placement of large woody debris in the pond. A second project option would be to replace the existing box culvert with a trestle to restore connectivity, improve sediment transport, and reduce flow-dependent fish passage problems. Project could also explore the potential for marine riparian vegetation restoration/enhancement on the beach side of the tracks, including potential beach nourishment opportunities. County park includes approximately 1050 ft. of shoreline.	$433,000 for the proposed Snohom. County Project	Lunds Gulch in the least developed creek basin in the Nearshore subarea, and according to the EDT results has the highest potential for improved Coho habitat productivity. The off-channel pond would help reduce stream flooding and provide high flow fish refuge. There is a history of riparian vegetation enhancement upstream in the watershed. The site also has potential for public involvement/education opportunities.	**M**	**M**

Protection

Technical Hypothesis:

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
M229	S9.04			New	**Meadowdale Marina Acquisition and Removal:** Acquire and remove the dilapidated marina structure. The site is a total of 2.17 acres, with the buildings/wharfs representing approx. 1.7 acres of over-water structures.	land value ~$300,000 demo ~$200,000	Current owner would like to re-build the property and turn it into a retail shopping mall, but this is inconsistent with Edmonds Shoreline Master Program. One of the largest remaining over-water structures in the WRIA 8 nearshore. Feasibility uncertain due to landowner unwillingness. Potential concern over contamination issues during demolition. Dense eelgrass beds are located north and south of the structure. The marine nearshore habitat impacts of this structure include shading within a productive eelgrass area and potential interference with juvenile salmon migration and foraging along the shoreline. Removal of marina structures may also have positive effects on longshore drift of sediment. Timing may be good for approaching landowner before re-development begins.	**M**	**M/L**

Sub-Reach 9.08-9.09: Shell Creek

Restoration

Technical Hypothesis:

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
M230	S9.08-09		New	**Shell Creek Beach Nourishment:** Conduct beach nourishment activities at the mouth of Shell Creek near Yost Park.		Although Sound Transit is not pursuing this option as part of its nearshore mitigation for the Seattle-Everett Commuter Rail Project, this option received positive scores on all physical and biological evaluation criteria. This beach rehabilitation option could also expand the high tide beach area available for backshore vegetation enhancement and public use. Site was identified as 2nd best opportunity for beach restoration potential by Sound Transit. Concerns expressed about the need for sustained effort to maintain beach nourishment projects (this reduces feasibility). Few examples of beach nourishment have been attempted in the area, and pilot projects are needed to evaluate their utility. A potential source of sediments for this or other beach nourishment projects is dredged materials from the Duwamish or Snohomish Rivers and delta. Dredging planned in these areas by the U.S. Army Corps of Engineers.	**M**	**L**
M231	S9.08-09		New	**Shell Creek Culvert Replacement:** Replace the existing culvert where Shell Creek crosses the railroad with a trestle to restore connectivity and improve sediment transport.		Good quality wetland habitat exists upstream of the culvert that could be more accessible if culvert replaced.	**L**	**L**
M232	S9.08-09			**Bracketts Landing Park Vegetation Enhancement:** Riparian vegetation enhancement at Bracketts langing including addition of low-growing trees. There is an invasive species problem just to the north of the site. Further enhance the marine riparian vegetation by adding native plants to existing backshore areas and removing non-native invasive plants where appropriate and compatible with existing park uses.		One of Snohomish County's largest kelp beds extends north from Edmonds Underwater Park. Surf smelt and sand lance spawning has been documented along Olympic Beach and Brackett's Landing. The southwestern two-thirds of Olympic Beach is modified by a sea wall. The City of Edmonds owns all but 100 feet of the tidelands in this shore unit and about two-thirds of the adjoining upland property. The City of Edmonds has established small parks with public shoreline access on both sides of the ferry terminal. These park improvements include some native marine riparian vegetation.	**L**	**H**

Protection

Technical Hypothesis:

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
	S9.08-09				No projects identified at this time				

Sub-Reach 9.15: Willow Creek

Restoration

Technical Hypothesis:

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
M233	S9.15		New	**Willow Creek Daylighting:** Proposed mitigation project for nearby "Edmonds Crossing" development (including new ferry terminal). Daylighting creek through existing fuel pier (using box culverts) will improve connectivity with the Willow Creek Marsh, one of the largest remaining marsh areas in the WRIA 8 nearshore.	$250,000	Possibility of also restoring vegetation at the outfall of Willow Creek as well. Good opportunities for public education at this site.	**H**	**H**
M234	S9.15		New	**Willow Creek Pier Removal:** Demolition of existing pier as part of mitigation for new ferry terminal.	$350,000	Potential concern over contaminated materials at the site.	**M**	**H**

Protection

Technical Hypothesis:

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
	S9.15				No projects identified at this time				

Reach 10A: Edwards Point to Meadow Point

Restoration

Technical Hypothesis:

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
M235	10A		New	**Woodway Tidal Lagoon North:** Potential culvert improvement project at an inter-tidal lagoon and mud flat where railroad was built offshore South of willow creek.		Potential fresh water seepage into lagoon could make for good shallow water habitat. Site should be investigated further, as little is currently known. Sound Transit is scheduled to conduct track improvements (widening) at the site soon, and culvert improvements or other accommodations could potentially be designed in to the project to improve connectivity of lagoon to nearshore. Potential Sound Transit mitigation site.	**H/M**	**H**
M236	10A		New	**Deer Creek Restoration or Culvert Replacement:** Enhance the connectivity of Deer Creek and the associated estuarine wetland with the nearshore by replacing the two concrete culverts with an oversized culvert or a trestle bridge. Sound Transit will be conducting some mitigation at this site for proposed track improvements including either vegetation enhancement OR the replacement of the existing culvert with a trestle.		This option was considered by Sound Transit for its mitigation plan, but it was rejected for cost and logistical reasons. Site hosts several small tidal lagoons upstream of tracks that could be improved. Significant amount of forested area in basin. Deer creek is too steep for fish passage. Some individuals expressed concern over installing a trestle on this site, which may actually eliminate the lagoon upstream of tracks. Several participants felt that this was probably not the best site for a trestle. Concern was also expressed about water quaility from road runoff at the site being a threat to juvenile fish.	**H/M**	**H/M**
M237			New	**Point Wells Complete Site Restoration:** Restore the entire Point Wells site by completely removing the sea wall, riprap dike, and fill. Regrade the site and reconnect local freshwater sources to re-create a tidal lagoon system with an opening at the north end of the point, which was probably the original mouth of the tidal lagoon system. Reestablish native riparian and backshore vegetation.		Point Wells is within Snohomish County jurisdiction and the current land use designation is “Rural Use.” The future land use designation is “Urban Industrial.” The site is proposed for annexation by the City of Shoreline or the City of Woodway and the City of Shoreline has shown interest in the site for commercial development. The northern part of this site is the preferred alternative for siting the Shoreline commuter rail station.	**H**	**L**

M238	10A		New	**South Point Wells Habitat Restoration**: Enhance the south shoreline by removing riprap dike, eliminating invasive plants, and reestablishing native riparian and backshore vegetation.		The south shoreline is approximately 800 feet long, has sandy substrate, supports some beach grass and other herbaceous vegetation, and includes a fair amount of large woody debris. Point Wells is within Snohomish County jurisdiction and the current land use designation is “Rural Use.” The future land use designation is “Urban Industrial.” The site is proposed for annexation by the City of Shoreline or the City of Woodway and the City of Shoreline has shown interest in the site for commercial development. The northern part of this site is the preferred alternative for siting the Shoreline commuter rail station. The south shoreline, with its proximity to nearby residential areas, has potential value for public access.	**H/M**	**M/L**
M239	10A		New	**South Point Wells Lagoon Creation:** Creation of a three acre inter-tidal lagoon at the south end of the Point Wells site that may have historically been a marsh (before it was filled).		The south shoreline is approximately 800 feet long, has sandy substrate, supports some beach grass and other herbaceous vegetation, and includes a fair amount of large woody debris. The “functional/ecological viability” of this option was rated high by Sound Transit’s Mitigation Task Force. Sound transit had negotiated this as a mitigation site with Chevron, but they have backed out at this point, potentially due to contamination concerns on the site. Regardless, this could be a good future mitigation site, as it is part of the Chevron property not being utilized. This site will also be very close to the location of the outfall from the new Brightwater sewage treatment plant. There may be some (likely small) mitigation requirements that go along with the siting of this outfall.	**H/M**	**M/L**
M240	10A		New	**Richmond Beach North Property Acquisition:** Acquisition, demolition, and restoration of shoreline where numerous (30+) homes that are built in the nearshore north of Richmond Beach park.		Would be a very expensive project.	**H/M**	**L**

Protection

Technical Hypothesis:

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
M241	10A		Y	New	**Deer Creek Habitat Acquisition:** Preserve the existing riparian vegetation, stream outfalls, and unmodified shoreline along the southern portion of the Deer Creek outfall area.		This site includes two shore units north of Point Wells. It is within the City of Woodway. The southern portion of this site is a high quality remnant riparian area with several small freshwater outfalls that flow across the unmodified beach face. A wide eelgrass bed extends north from this beach and covers much of the adjacent low tide terrace. Forest cover in the Deer Creek drainage basin is relatively intact and much of the riparian area along the stream is owned by the Olympic View Water District. Sound Transit is planning to reestablish the second railroad track along this segment up to Edmonds. This "corridor improvement" will include some additional filling of the estuarine wetland on the east side of the railroad and the Deer Creek culverts will be extended 15 – 25 feet on the upstream side.	**M/L**	**M**
M242	10A			New	**Point Wells North Habitat Acquisition:** Acquisition and protection of a very small (~ 1 acre) remnant piece of marine riparian habitat exists on the north side of Point Wells. Despite the proximity to the Point Wells site, it would be a valuable piece to protect. Approx. 850 ft of shoreline.		Landowner unknown. Small site and proximity to Point Wells may make acquisition very difficult to find funding for.	**M**	**M**

Sub-Reach 10A.10: Boeing Creek

Restoration

Technical Hypothesis:

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
M243	S10A.10		New	**Barnacle Creek Wetland Construction:** Create tidally influenced wetland habitat on the east side of Burlington Northern Railroad Tracks at Barnacle Creek.		Proposed by City of Shoreline	**L**	**L**

Protection

Technical Hypothesis:

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
	S10A.10				No projects identified at this time				

Sub-Reach 10A.12: Pipers Creek

Restoration

Technical Hypothesis:

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
M244	S10A.12			**Pipers Creek Culvert Replacement:** Replace the existing culvert under the railroad with a trestle to restore connectivity and improve sediment transport.		Coho and chum have fish passage problems upstream, and it seems as though fish are currently getting to the areas that are accessible to them. Project may not create or make available much habitat for Chinook, as the creek is primarily used by coho/chum. Active community group in the area has done a lot of riparian, mass wasting, and drainage work. Opportunity exists for lots of public education and to dovetail project with work of community group. Culvert may not be as undersized as others in the area, as it seems to be transporting significant sediment. BNRR has been resistant to proposals for modify the culverts at this site in the past due to cost and potential for interrupting train traffic during construction.	**M**	**M**

Protection

Technical Hypothesis:

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
	210A.12				No projects identified at this time				

Reach 10B: Meadow Pt to Shilshole

Restoration

Technical Hypothesis:

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
M245	10B			**Golden Gardens Pocket Estuary:** Explore creation of pocket estuary at Golden Gardens Park (owned by Seattle Parks) that juvenile fish can access. The north end of the park has a perched wetland area that has a great deal of flat land that could be converted to a more substantial wetland complex. North end of the park could be modified to allow fish to have access to the wetland.		Creating fish access would likely take a permanent engineering solution that fights with natural sediment processes. Is closest area of flat land near locks that could serve this function. The feasibility of providing a naturalistic hydraulic connection between the marsh and the open water of Puget Sound would be a huge challenge in this environment due to the fluid nature of the beach material. Historically, the entire beach area did not exist, so there is no history of estuary in this area. Given that the current wetland is a relatively recent and expensive addition to the park, there may be significant public and political resistance to changing it. Lots of opportunity for public education.	**M**	**L**

Protection

Technical Hypothesis:

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
	10B				No projects identified at this time				

Reach 11: Shilshole to Locks (Estuary Reach)

Restoration

Technical Hypothesis:

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
M246	11		new	**Azteca/Golden Tides Restoration:** Acquire and restore the Azteca/Golden Tides site at the entrance to Salmon Bay from Shilshole Bay. The project envisions removing over-water structures and possibly part of the Ray's Boathouse dock to expose a large stretch of shoreline, including the NW 60th Street End Park, for habitat restoration and public access. Pilings should be removed, and riprap removed where it has fallen into the water. Project could include removal of floating dock and bait pens on the north shoreline of Shilshole Bay. Dock and pens are under lease from the U.S. Army Corps of Engineers. There may be an opportunity to create forage fish spawning habitat.		Project identified by Groundswell NW. King County CFT funds awarded through the Shorelines Initiative could provide seed money. The high visibility of the site makes it ideal for interpretive elements. Good public education/outreach benefits.	**M/L**	**M**
M247	11		1	**Salmon Bay Natural Area:** Increase rearing/refuge area for millions of salmon smolts that migrate through and use this transition area between freshwater and saltwater. As proposed, project goals would be to acquire the property, plant native shoreline vegetation, remove riprap, re-slope shoreline, and add gravel/sands where appropriate. The Salmon Bay Natural Area is downstream of the Hiram M. Chittenden Locks on the north bank between Hiram's restaurant and the railroad bridge, and behind the U.S. Army Corps of Engineers' finger pier. Project partners include Groundswell Northwest, City of Seattle, and U.S. Army Corps of Engineers.		Acquisition funded and nearly complete. Upland restoration in process. In-water restoration in-design. National Fish and Wildlife Foundation, KCD, Seattle Public Utilities, ALEA, Neighborhood matching grants. Mitigation funding may be used for removal of over-water structures (dock and house). Riprap has fallen into the water. Uncertainty about funding available for riparian restoration. Good public education benefits.	**M**	**H/M**
M248	11		2	**36th Ave. NW Street End on Salmon Bay:** Increase rearing/refuge habitat for juvenile salmon by restoring the conditions at this site, which is located downstream of the Salmon Bay Natural Area just west of the railroad bridge. Alternative bank protection measures would be used to create a more gradual slope. In addition, riparian and emergent vegetation could be planted, and the substrate could be amended to restore nearshore habitat. Site includes approximately 70 ft. of shoreline.		In Process - City of Seattle. Small area. The adjacent property owner has applied for permits to rebuild the bulkhead. The property is publicly owned; therefore, funds would be needed for restoration, but not acquisition. Failed bulkhead exists with lots of rip rap and rubble in the water which should be removed. Project identified by Groundswell NW - they describe it as a modest project. May create a viewpoint on the bank above. Good public education benefits, not necessarily good benefits for fish.	**M/L**	**M**

M249	11		new	**Salmon Bay Dock Consolidation:** Work with dock owners/boat ramps to consolidate and reduce the number of docks and hardened structures, within Salmon Bay. Area is migration corridor. Docks, ramps and bank hardening change the inter-tidal plant/animal community (prey types).		Could include Ballard Bait dock and pen removal, where long-term lease is currently up for removal. Corps could refuse renewal of lease and could also assist with costs associated with dock removal. Ballard Bait dock is largest overwater structure between the RR Bridge to Azteca. Good public education benefits.	**M**	**M/L**
M250	11		3	**Commodore Park and Wolfe Creek Restoration:** Explore feasibility of habitat restoration at Commodore Park, located immediately downstream of the Hiram M. Chittenden Locks on the south bank. Purpose of the project would be to increase the limited high-quality rearing/refuge habitat for millions of salmon smolts that migrate through and use this area as a critical transition between freshwater and saltwater. Armored seawall should be removed and restored to a more gentle vegetated slope. Project could be combined with daylighting of Wolfe Creek to create a pocket estuary downstream of the locks. Park recreational use should be maintained.			**H/M**	**L**

Protection

Technical Hypothesis:

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
	11				No projects identified at this time				

Reach 12: North Discovery Park to West Point

Restoration

Technical Hypothesis:

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
M251	12			**West Point Pocket Estuary:** Explore creation of pocket estuary at West Point (owned by King Co. DNRP (WTD)). This area used to have some form of salt marsh that appears to have allowed fish access (Seattle Tide Land Map 1895). Currently there is a skinny, long, perched wetland between the bulkhead and the facility. It seems like it would be possible to expand the length of this wetland (towards the lighthouse) and come up with a permanent engineering solution to allow fish access.		This area is far less substantial in area that is usable than the Golden Gardens site, but it still might be enough to help out. Site is currently not tidally influenced. A heavily engineered solution would be required to maintain such an estuary, but it is one of the few opportunities available. The existing wetland is at a higher elevation than the Golden Gardens site. As such, any saltwater wetland may have to have a steep sided channel rather than a flat gradient mud flat type of marsh environment.	**M**	**L**
M252	12			**Shilshole Bay South Buyout and Restoration:** Project would buy out homes on the south side of Shilshole Bay, demolish the homes and restore the nearshore. This area extends from the "Dolphin 8" buoy to points south. All of these homes and their hardened shorelines are affecting the shallow water migration corridor, feeding area, etc.		One of the few nearshore areas in WRIA 8 without the railroad so it should be considered a feasible opportunity for buyout and restoration.	**H**	**L**

Protection

Technical Hypothesis:

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M. L	Feasib. H, M, L
	12				No projects identified at this time				